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ABSTRACT

The paper addresses itself to the R-L-L Curriculum Model as developed by this Title III ESEA Project. The elements of the model are described: 1) The educational purposes or objectives as defined within the scope of the basic activities of man; 2) The learning experiences necessary for the behavioral objectives stated in terms described by Mager; 3) Organization of these experiences around content, multi-media instruction, and the field lab where primary source materials provide the vehicle for inquiry; 4) The teaching strategies are based on conceptualization as a learning theory. The teacher-directed Taba Model has been modified and combined with the R-L-L Model and is based on the theory that learning is a continuous process; 5) Evaluation through feedback of the learning experiences in terms of their function in the process of conceptualization; 6) A test for concept development. Reflecting concern with the "real world," each model is designed as a learning unit which utilizes the community as a laboratory. The nature of the content is determined by social science concepts which are an integral part of the problem-solving process and implicit to an understanding of community. SO 000 068 and SO 000 070 describe Curriculum Model #1 and #2 learning units. (SBE)

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DEVELOPING A CURRICULUM MODEL

An Inquiry Oriented Curriculum Model for the Development of Social Science Concepts in Field Laboratories

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Curriculum developers generally agree that the best definition of curriculum is a system of teaching someone something by some process. The development of a curriculum system is usually considered in relation to the elements as described by Tyler[1]:

1. purpose or objectives
2. learning experiences
3. organization of content
4. evaluation of the experience

A survey of recently developed Social Science curricula presents evidence of the continued adherence to the elements of this system but shows evidence of a <u>deviation</u> in <u>emphasis</u> within the development of the various curricula[2].

This paper will direct itself to a description of the curriculum model as developed by a Title III, ESEA project, referred to as the R-L-L Model, giving additional evidence of this divergence in emphasis. Elements of the R-L-L model are:

1. The educational purposes or objectives as defined within the scope of the basic activities of man.
2. The learning experiences necessary for the stated behavioral outcomes.
3. Organization of these experiences around content, media and field lab.

4. Teaching strategies necessary for conceptualization and application of principles.
5. Evaluation of the learning experiences in terms of their function in the process of conceptualization.

Educational objectives

The educational objectives of the R-L-L Model #1 and successive models are concerned with the basic human activities of man as listed by Hanna[3]:

1. Protecting and conserving human, natural and capital resources
2. Producing, exchanging, distributing, and consuming goods and services
3. Transportation of resources
4. Communication of ideas and attitudes
5. Providing recreation
6. Organizing and governing
7. Providing education
8. Creating tools, technics and social arrangements
9. Expressing and satisfying the aesthetic and spiritual

The objectives of each model are expressed at two levels of specificity. The first level or general objective serves to direct the scope of the model. This objective is implicit in the problem to be solved i.e...How does man secure and

and conserve water? Concepts to be developed within this level, as an integral part of the problem-solving process, are identified and classified by high order and low order, a hierarchy defined. The content is therefore dictated by the nature of the concept or concepts.

The second level is the instructional objective which states in behavioral terms the desired performance of the student. The instructional objectives are related to a psychology of learning in that they identify the sequence and conditions of behavior necessary for (a) concept formation, (b) interpretation of data and formulation of generalizations and (c) application of principles.

It may be noted that level one deals with the educational purposes while level two provides the skeleton upon which the learning experiences may be developed.

Organization of Learning Experiences

The learning experiences were designed through analysis and inventory of the learning tasks necessary for attainment of the formulated objectives. The learning tasks were stated in behavioral terms as described by Mager[4], noting that the behavior was both observable and measureable. That is, the task was clearly defined by telling what the learner is doing, under what conditions, using what materials, and to what degree of competence. Though elements 2 and 3 of the model appear separately they were in fact developed simultaneously. The learning experience and the organization of the experiences

are implicit in the behavioral objective.

The learning experiences were identified in accordance with the role they were to play within the model i.e...pre-field, field, or post field. They were designed to provide a variety of experiences involving multi-media (primary source material - documents, ledgers, maps, vital statistic records, photos, newspaper articles, simulated primary source material, films, slides, transparencies etc.)

Primary source materials provided the vehicle for inquiry. Through inquiry, these materials provided the student with the data necessary to make inferences and verify his hypothesis. Where adequate data was not evident within the primary source materials the student then utilized the field-lab. In some cases the field-labs served to contrast and compare data or to verify predictions. Cameras were also utilized to film data for later verification. Newspaper articles provided the student with a sense of fervor of the times relative to the issue in question. Maps served both as a tool for skill development and for making inferences in the process of comparing and contrasting changes in the growth patterns of a community. Vital statistic records provided insite as to the place of origin, occupation etc. of the people within the community.

The materials listed and described, while providing the vehicle for inquiry, in no way insure that the student will engage in this process. It is rather the strategies which the teacher employs in the use of the material.

Teaching Strategies for Inquiry

The teaching strategies within the R-L-L Model are based on conceptualization as a learning theory. Recent research in science and math stimulated similar studies in the Social Sciences which in total have demonstrated the merits of conceptualization. Probably the most fundamental work on conceptualization as a theory and process had been done by Jerome Bruner[5] and Hilda Taba[6]. Both Bruner's and Taba's theories of learning show evidence of influence of Piaget's[7] suggestion of progressive sequence in the development of cognitive skills. These learning theories postulate that the child does not inevitably move from a lower to a higher phase of cognitive development but rather that there is a progressive sequence. The Taba model was chosen as it clearly identified both the question and activity necessary within each cognitive task. It is clear cut and has proved a successful vehicle for the development of cognitive skills. Initial piloting of the modified Taba[8] model (as will be discussed by my colleague) indicates the questions are specific enough to aid the teacher in each of the cognitive tasks.

The questioning process in the Taba model[8] is teacher-directed as opposed to the Suchman[9] model which is student-directed. (Suchman presents an episode or happening predicated on the belief that it will produce the drive "to find out why".) However, these strategies are not to be misinterpreted as highly directed teacher behaviors but

rather highly integrative behaviors purposefully designed to provide systematic guidance in conceptualization, interpretation, and application of principles. The Taba model as modified within the R-L-L model is based on the theory that learning is a continuous process requiring both the assimilation of new data and the accommodation of previous conceptual systems to the criteria of the new. Within the first draft of Model #1, teaching strategies were outlined for the teachers without detailed specifics. Pilot teachers had been given training in Taba's strategies during a three-week summer institute. It was assumed that this training would provide the necessary knowledge for application of the strategies at a later date. There was a 5 month time lapse between the teacher-training period and piloting of the materials due to the time necessary for research and development of the classroom materials. It was anticipated that teachers would attempt to use these strategies in their classrooms, gaining experience and confidence prior to the piloting period. Model #1 was introduced and teachers reported difficulty and confusion in application of the strategies. Feed-back reported too long a time lapse between the training period and application.

Model #2, then in the process of development, includes detailed steps for each cognitive task, including eliciting questions and anticipated student response. Pilot teachers reported much less difficulty with the strategies in this model due to the "spelling out" of each task. In light of

this feed-back, Model #1 has been revised and successive models developed in much more detail.

Classroom observation, since then, gives evidence of the transfer in application of these strategies to other content areas. As teachers have become more confident in the process, they have utilized this approach beyond just the R-L-L models. Teachers reported that in some cases, students have been the initiator in suggesting this process i.e.... grouping, labeling, comparing and contrasting, inferring.

This feed-back has been significant for successive Teacher-training institutes in that provisions were made for laboratory teaching during the institute.

Evaluation

Evaluation of the model is in both the form of a feed-back system and a test for concept development. The feedback system implies that the criterion measures used in the evaluation will supply data indicating the extent to which each objective is being attained both by the individual student and the class as a whole. When objectives are written in behavioral terms the task of evaluation is made much simpler since the intended learning outcomes have already been specified in advance. Failure to accomplish the objectives at specified levels then suggests clues for the planning of alternative learning experiences, thus revision of each of the component parts....pupil entry behavior, teaching strategies, and pupil learning processes, and the selection and

organization of content materials appropriate to the objectives. Teacher participants and classroom observors provided the feed-back data for evaluation of output and revision prior to the second piloting period.

The concept test was prepared using the general approach developed by Kropp and Stoker[10] in their study, The Construction and Validation of Tests of Cognitive Processes As Described In the Taxonomy of Education Objectives. This approach was used as the curriculum model had already identified the instructional objectives according to the levels of Bloom's Taxonomy [11]. The model had also established a heirarchy in the identification of high and low order concept. Forty multiple-choice and matching items plus seven problem-type questions were used on Form A of the Test of Concept Learning. Each of the items was constructed within a particular level of the taxonomy. The problem questions were designed to test out student performance on combined higher levels of analysis, synthesis, and evaluation in realistic problem situations related to the study. The test was administered to about 120 students in four experimental classes, grades 3, 4, 5. The same test was also administered to a comparable control group simply to test out the effect of general knowledge on pupil scores.

Mean scores have been compared by class and total group to test for significant difference. An item analysis has been made and normative data developed. Analysis will be

made of student achievement both as to concept attainment and as to level of complexity of cognitive processes based on the Bloom Taxonomy. (This will be reported by my colleague Dr. Clegg).

Recommendations for future models

1. Affective Domain - Though the first three models have briefly touched upon the affective domain, greater attention should be given to a synthesis of the Cognitive and Affective as suggested by Hill in an unpublished paper at AERA - 1969. Model #1 provided opportunities to explore and develop this domain yet teachers appeared to shy away from these opportunities. The teachers had been provided with little experience in the affective domain. In-service training had touched briefly on the classification of categories. Though materials were provided i. e...Case study of Shays' Rebellion, teachers did not utilize these. It is suggested that strategies need to be identified for affective as well as the cognitive.
2. Analysis and inventory of the learner tasks should be followed by assessment and testing of input competence then final identification and characterization of the actual learning task, i.e....Form A, Greater emphasis should be placed

on the pre-requisite capabilities required before the instruction begins.

3. Educational Goals - These goals should reflect student needs and interests, through utilization of input testing as well as student feed-back. E.G...Initial piloting reflected differences in student needs in accordance with the background of the student. For example, those in the inner city school possessed different understanding than those in the rural areas as to wells, water meters. Interest was high at all levels, as reported by teachers.

Summary

The curriculum models developed by R-L-L have stated educational goals concerned with the basic activities of man. Because of this concern with the "real world" each model is designed as a learning unit which utilizes the community as a laboratory. Social science concepts implicit to an understanding of community, in the broadest sense, determine the nature of the content. Learning experiences, stated in behavioral terms are designed to require higher cognitive levels of thinking. Teaching strategies necessary for the cognitive tasks are specified. Evaluation provides a feed-back on each objective and also tests student performance at higher cognitive level.

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